STATUS OF THE CLAIMS

Claims 1-25 (Canceled).

26. (Previously presented) A method of forming a programmable memory cell, said method comprising:

forming a first conductive electrode material on a substrate;

forming a chalcogenide comprising material over the first conductive electrode material;

forming a metal-containing layer over the chalcogenide comprising material;

diffusing at least a portion of said metal-containing layer into said chalcogenide comprising material, wherein said step of diffusing forms a rough outer surface on said chalcogenide comprising material;

exposing a portion of said rough outer surface to an iodine comprising fluid that reduces the roughness of said outer surface by etching away at least a portion of said rough outer surface; and

forming a second conductive electrode material over said chalcogenide comprising material.

27. (Canceled).

28. (Previously presented) The method of claim 26, wherein said iodine comprising fluid is a potassium iodide solution.

29. (Previously presented) The method of claim 28, wherein said potassium iodide solution comprises from 5 to 30 grams of I_2 per 1 liter of a from 20% to 50% by volume potassium iodide solution.

30. (Previously presented) The method of claim 26, wherein said rough outer surface comprises at least 30 atomic percent silver diffused into said chalcogenide comprising material.

31. (Previously presented) A method of forming a chalcogenide structure, said method comprising:

forming a chalcogenide glass layer;

forming a metal-containing layer over the chalcogenide glass layer;

forming a rough outer surface on at least a portion of said chalcogenide glass layer by diffusing at least a portion of said metal-containing layer into said chalcogenide glass layer, wherein said rough outer surface comprises at least one element selected from Group 13, Group 14, Group 15, or Group 17 of the periodic table; and,

smoothing said rough outer surface with an iodine comprising fluid that removes at least a portion of said rough outer surface.

32. (Canceled).

33. (Previously presented) The method of claim 31, wherein said iodine comprising fluid is a potassium iodide solution.

34. (Previously presented) The method of claim 33, wherein said potassium iodide solution comprises from about 5 to about 30 grams I_2 per liter of a from about 20% to about 50% potassium iodide solution.

35. (Previously presented) A method of forming a chalcogenide structure, said method comprising:

forming a semiconductor substrate;

forming a first dielectric layer over said semiconductor substrate;

forming a first conductive layer over said first dielectric layer;

forming a second dielectric layer over said first conductive layer;

forming an opening in at least a portion of said second dielectric layer, wherein at least a portion of said first conductive layer is exposed;

forming a chalcogenide glass layer at least over a portion of said opening and said exposed first conductive layer;

forming a metal-containing layer over said chalcogenide glass layer and said dielectric layer;

diffusing at least a portion of said metal-containing layer into said chalcogenide glass layer, wherein said step of diffusing forms a rough outer surface on said chalcogenide glass layer;

removing at least a portion of said rough outer surface with an iodine comprising fluid to form a smoother surface; and,

forming a second conductive layer over said chalcogenide glass layer.

36. (Canceled).

37. (Previously presented) The method of claim 35, wherein said iodine comprising fluid is a potassium iodide solution.

38. (Previously presented) The method of claim 37, wherein said potassium iodide solution comprises from about 5 to about 30 grams I_2 per liter of a from about 20% to about 50% potassium iodide solution.

39. (Previously presented) The method of claim 35, wherein said metal-containing layer comprises silver.

40. (Previously presented) The method of claim 35, wherein said rough outer surface comprises Ag_2Se.

41. (Previously presented) The method of claim 35, wherein said first and second conductive layers are electrodes.

42. (Previously presented) The method of claim 35, wherein said chalcogenide glass layer is formed to be from about 100 Å to about 1000 Å thick.

43. (Previously presented) The method of claim 35, wherein said step of diffusing further comprises exposing said metal-containing layer and said chalcogenide glass layer to radiation having a wavelength of from about 164 to about 904 nanometers.

44. (Previously presented) The method of claim 35, wherein said metal-containing layer is formed to be less than or equal to 200 Å thick.

45. (Previously presented) The method of claim 35, wherein said second conductive layer is formed from about 140 Å to about 200 Å thick.

46. (Previously presented) The method of claim 35, wherein said substrate comprises silicon.

47. (Previously presented) The method of claim 35, wherein said first dielectric layer comprises silicon dioxide.

48. (Previously presented) The method of claim 35, wherein said second dielectric layer comprises silicon nitride.